

## **REMARKS**

Applicant appreciates the Examiner's thorough consideration with respect to the present application. Claims 1, 3-7, 9, and 11-31 are currently pending. Claims 1, 6, 9, 11, 13, 26, 29 and 30 are independent. Claims 26-31 have been added for the Examiner's consideration. Entry of the above amendments is earnestly solicited. Reconsideration of this application, as amended, is respectfully requested.

The subject matter of claims 26-31 is fully supported by the original written description, including but not limited to, pages 6 and 11-13, FIG. 3(a) and FIG. 7 for additional claims 26 and 31; page 4, line 21 for additional claims 27 and 29; and pages 19-20 and FIG. 7 for additional claims 28 and 30.

## **Allowable Subject Matter**

Applicant appreciates the Examiner's indication of allowable subject matter. Specifically, claims 9, 13-20, 23 and 25 have been allowed by the Examiner. However, as described in greater detail hereinafter, Applicant submits that all of the claims of the present application are allowable and the present application should be passed to Issue.

**Claim Rejections Under 35 U.S.C. § 102**

Claims 1, 3, 4, 6, 7, 12, 21 and 22 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the Electronic Circuit Parts Handbook (submitted by Applicant). This rejection is respectfully traversed.

The oscillation circuit of the claimed invention of claims 1 and 6 produces unexpected and heretofore unknown beneficial effects. Specifically, even if the claimed circuit utilizes a crystal resonator having a basic frequency of between 1 to 500 MHz as its oscillation element, the claimed circuit is stable as it oscillates on the basic frequency. In the prior art of record, this stable oscillation can only be achieved by changing the oscillation circuit constant and the configuration for every oscillator. Accordingly, Applicant submits that the Examiner is ignoring this beneficial effect of the claimed invention and the inability of the structure of the prior art of record to achieve this beneficial effect. Further, Applicant submits that the prior art of record fails to teach all of the structural limitations of the claimed invention.

Applicant submits that the Examiner's interpretation of the Handbook reference appears improper. In the description of this reference, Fig. 5-11 is an inverter-type circuit, but the configuration of this circuit is different from that of the claimed invention of claims 1 and 6. The inverter type high frequency oscillation circuits of claims 1 and 6 are not taught or described within the

Handbook reference. As seen in FIGs. 3(a) and 4(a) of the present application, the alleged inverter type circuit of the Handbook reference is different from the claimed invention. Accordingly, this rejection should be withdrawn.

**Claim Rejections Under 35 U.S.C. § 103**

Claims 5, 11 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over "The Electronic Circuit Parts Utilization Handbook" (Handbook reference hereinafter) cited by Applicant in view of Official Notice. This rejection is respectfully traversed.

In light of the foregoing amendments to the claims, Applicant submits that this rejection has been obviated and/or rendered moot. Applicant submits that the prior art of record fails to teach or suggest each and every element of the unique combination of elements of the claimed invention of claims 5, 11 and 24. Accordingly, these rejections should be withdrawn.

With respect to claim 11, Applicant submits that the prior art of record fails to teach or suggest the feature(s) of: "wherein said logic element includes a high-speed TTL or CMOS;. . . and a crystal resonator for high frequency being disposed within said closed loop circuit, said crystal resonator being connected in series with said capacitor and in parallel with said resistor, *said crystal*

*resonator having a basic oscillation frequency of 500 MHz or more.*" (emphasis added) Accordingly, this rejection should be withdrawn.

Applicant has submitted remarks pointing out the beneficial and unexpected effects of the claimed invention. Further, Applicant has pointed out that the prior art of record cannot be modified as alleged by the Examiner to achieve the high frequency characteristics of the claimed invention. Specifically, the stable oscillation of the claimed invention can only be achieved with the prior art of record by changing the oscillation circuit constant and the configuration for every oscillator. This is specifically avoided in the claimed invention. Finally, rather than provide documentary evidence to support the Examiner's opinion that it would have been obvious to modify the Handbook circuit to achieve the unique characteristics of the claimed invention, the Examiner has opted to rely on "Official Notice." The Examiner's use of Official Notice is respectfully traversed as the Examiner is relying upon Official Notice to simply disregard a patentable feature of the claimed invention without any support for this alleged modification in the prior art of record. Therefore, if the Examiner does not provide proper evidentiary support in the prior art for this alleged modification in accordance with the requirements of MPEP § 2144.03 and in response to this Office Action, this rejection should be immediately withdrawn.

Applicant submits that the prior art of record fails to teach or suggest the high-frequency type crystal resonator and the high-speed TTL or CMOS in response to high-frequency oscillation that are utilized in a closed circuit of the claimed invention. The high-frequency oscillation circuit of the claimed invention includes a crystal resonator, in which the crystal resonator has a unique basic frequency, and/or is characterized by oscillating the basic frequency without having to change the circuit constant at all. In the prior art of record relied upon by the Examiner, it would be necessary to change the circuit constant (for each crystal resonator) to attempt to achieve any of the effects of the claimed invention. Further, the basic frequency is capable of being up to 500 MHz in the claimed invention.

The locations of the logic elements such as the high-frequency type crystal resonator and the high-speed TTL or CMOS in response to high-frequency oscillation are entirely different from that of the circuit in the cited prior art. In the claimed invention, the logic element is the high speed TTL or CMOS in response to high-frequency oscillation, i.e., different from the applied Colpitts oscillator of the cited documents.

The Handbook reference shows a circuit of 14 MHz or less, but in the claimed invention, a basic frequency of oscillation of a crystal resonator oscillates on high frequencies of up to 500 MHz. The claimed invention omits such a

resistor or condenser as shown in the cited document and also has made it easy to respond to high frequencies. The high-frequency oscillation circuit of the claimed invention includes an electronic element called as an inverter.

Accordingly, the high-frequency oscillation circuit permits the changing of a crystal resonator without changing the circuit constant at all, e.g., the circuit is interlocked by the crystal resonator and oscillates on the peculiar basic frequency (up to 500 MHz) of the crystal resonator. Namely, the conventional oscillation circuit can respond only to a predetermined natural basic oscillation frequency of a crystal resonator. This effect has been realized in that the oscillation circuit of the claimed invention oscillates on the lowest impedance of the closed circuit comprising a combination of crystal resonators that have oscillation frequency. In the prior art of record, the Examiner has not provided any evidence of how the alleged oscillation circuit could employ a crystal resonator having a basic frequency above 20 MHz to oscillate (operate) at all.

Finally, repeated research was made on circuit configuration and circuit constant to determine the circuit constant concerned respectively. By selecting the constant for each circuit, the frequency stability characteristic for the high-frequency oscillation circuit becomes excellent for applications such as thickness meters, chemical sensors, or biosensors. Further, it becomes possible to provide an output voltage as high as 3 to 10 V.

Specially, the results of the comparative experiment using a certain plasma polymerization film-covered crystal resonator are shown as follows. In the conventional circuit, frequency fluctuation of the oscillation frequency is about 100 Hz per hour. By using the circuit constant of the claimed invention, it is about 10 Hz, thereby showing stability better by approximately 10 times that of the conventional circuit.

Further, since the output voltage is 1000 times that of the conventional circuit (usually 10 mv-500 mv), it is hard to get disturbance noise, and it is possible to neglect the loss due to voltage drop in cable connection and relatively easy to measure frequency.

Applicant respectfully submits that the prior art of record, either in combination together or standing alone, fails to teach or suggest the invention as is set forth by the claims of the instant application. Accordingly, reconsideration and withdrawal of the claim rejection are respectfully requested.

As to the dependent claims, Applicant respectfully submits that these claims are allowable due to their dependence upon an allowable independent claim, as well as for additional limitations provided by these claims.

### **CONCLUSION**

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Matthew T. Shanley, Registration No. 47,074 at (703) 205-8000 in the Washington, D.C. area.

Applicant respectfully petitions under the provisions of 37 C.F.R. § 1.136(a) and § 1.17 for a two-month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **\$420.00** is attached hereto.



If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By \_\_\_\_\_

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